Executive Leadership

Fitness for Duty Implementation in Combination Fire and EMS Agencies

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CERTIFICATION STATEMENT

I hereby certify that this paper constitutes my own product, that where the language of others is set forth, quotation marks so indicate, and that appropriate credit is given where I have used the language, ideas, expressions, or writings of another.

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Abstract

The problem was that Chesterfield Fire and Emergency Medical Services did not employ a comprehensive fitness for duty standard for firefighters. Unidentified physical or medical conditions could have led to illness, injury or death while personnel were performing firefighting tasks. Descriptive research was employed to identify fire service standards that guide fitness for duty criteria; to discover legal, legislative and or regulatory influences; to note the desired outcomes of implementing such practices; and to determine the methodologies that fire service agencies were using to manage fitness for duty standards within their organizations. The research procedures incorporated literature review, an interview and a questionnaire. The results revealed that there was no definitive, single approach for implementing fitness for duty practices within the American fire service. However, there are a number of specific considerations and resources for organizations wishing to implement such programs. Recommendations included that the department document existing practices in a more thorough and comprehensive fashion; develop a definitive and documented approach to pre-employment screening and testing practices; and describe clear practices for personnel who are removed from active duty due to physical or medical conditions.

CONTENTS

Abstract 3

Introduction 5

Background and Significance 6

Literature Review 10

Procedures 31

Results 35

Discussion 45

Recommendations 54

References 58

Appendix I - Questionnaire 63

Appendix II - Chesterfield Fire and EMS Policy #5 - Health and Wellness 74

Appendix III - Chesterfield Fire and EMS Procedure - Fitness Program Management 78

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Introduction

People who deliver firefighting and emergency medical services are required to carry out physical activities on a scale similar to that of high level athletes. The physical tasks that firefighters perform during fireground operations exact significant physiological strains on their bodies (Sykes, 2002). Firefighters routinely work long hours on varying shifts, are periodically exposed to high intensity physical work, and are involved in human suffering causing emotional involvement, all of which create adverse psychological and physiological affects (International Association of Fire Chiefs [IAFC], 2008).

A number of legislative regulations, voluntary standards and legal considerations exist for fire service organizations to consider when evaluating and implementing fitness for duty initiatives within individual departments. In some instances these considerations may compliment each other and in others conflicts may arise as fire service leaders navigate through a maze of differing laws, regulations and standards. However, in spite of the intricacies of developing and managing fitness for duty practices within fire service organizations, one aspect is agreed upon; many of the line of duty deaths associated with medical problems are preventable (Krueger, 2008). They should not be viewed as accidents but preventable incidences which occur due to failures in training, risk management, communication, oversight and leadership (p. 3).

The research problem is that Chesterfield Fire and Emergency Medical Services does not employ comprehensive fitness for duty standards for firefighters. Department personnel performing demanding physical activities with underlying medical conditions are at increased risk for injury, illness or catastrophic medical emergencies which could lead to their death or disability, or to those around them.

Descriptive research will be conducted to determine which standards guide or recommend fitness for duty practices for use by fire service agencies; the legal, legislative and or regulatory influences to consider when implementing fitness for duty practices; the desired outcomes of implementing fitness for duty practices; and what methodologies other fire service agencies may be using to manage fitness for duty practices in their organizations.

Background and Significance

Chesterfield County is located in the Richmond metropolitan area of central Virginia. The county encompasses 446 square miles of land mass and, as of 2008, is estimated to have a population of over 311,000 people (Chesterfield County, 2008a). Chesterfield Fire and Emergency Medical Services (CFEMS) provides fire protection, emergency medical, emergency management and other response services for the county. The department maintains over 600 career and volunteer personnel, who staff 29 fire and rescue stations to provide these services. The department responded to over 31,000 calls for service in 2007 (Chesterfield County, 2007).

The first career employees of the CFEMS were hired in 1969 and over the following decades the department has grown to include more than 470 uniformed and civilian personnel today. This evolution in the size and type of department has followed the model most typically seen throughout the United States. As the county grew from a largely rural to suburban setting and the population substantially increased, the demands on service delivery associated with the growth were not able to be sustained through the volunteer fire protection and emergency medical service systems that existed almost four decades ago.

As the department has grown in size and call volume has increased, so has its member's exposure to occupational illnesses and injuries. With the origin of the career department in the late nineteen sixties and significant hiring of career firefighters occurring in the nineteen eighties,

many career firefighters are now approaching retirement age. This has placed firefighter health and wellness at a higher profile within the department's priorities and has occurred concurrently with the fire service's increased awareness of firefighter health and safety issues.

CFEMS has a long history of sustaining a very strong safety and wellness culture within the organization. The department has maintained a dedicated full-time safety officer since the late nineteen eighties. The organization has also facilitated annual health assessments for all career firefighters since that time. While these physicals have previously been voluntary for all personnel with the exception of hazardous materials response team members, the member participation rates have consistently remained in the high ninetieth percentile since program inception.

In 2002 the department began requiring newly hired personnel to sign memorandums of understanding regarding maintenance of body mass index and making their annual health assessments mandatory (F. Edwards, memo to department personnel, March 6, 2003). This was later followed by a requirement for mandatory annual health assessments for all personnel participating in the organization's career development program and for all members of the department's three specialty response teams (Chesterfield Fire and EMS, 2008b). These actions began a more concerted effort on behalf of the department to formalize health monitoring of career fire service personnel.

The organization maintains one policy and one procedure specific to addressing health and wellness programs within the department. Policy 5; *Health and Wellness* outlines the various programs, inclusive of annual health assessments, hearing and respiratory checks and a formal fitness program that Chesterfield Fire and EMS maintains to promote the health of its members (Chesterfield Fire and EMS, 2008b). Included in this document are potential outcomes for

personnel who fail respiratory clearance testing (p. 2). The policy also notes that participation in fitness training is mandatory each shift for personnel assigned to the Emergency Operations Division (p. 3).

The CFEMS procedure that relates to member health and wellness provides information on the department's fitness program management (Chesterfield Fire and EMS, 2008c). Language in the procedure notes that the CFEMS program is based on the *IAFC / IAFF Fire Service Joint Labor Management Wellness Fitness Initiative* and is designed to address core strength, flexibility and aerobic capacity (p. 1). The procedure also stipulates that the fitness program will be administered by a vendor qualified to manage such programs and that the scope of the program includes annual fitness checks, fitness program development, the monitoring of individuals, return to active duty support and smoking cessation assistance (p. 2).

The procedural language also mirrors that of Policy 5, *Health and Wellness* (Chesterfield Fire and EMS, 2008b), mandating participation in the fitness program for those personnel working in the Emergency Operations Division (p. 3). And, in accordance with NFPA 1582 the *Standard on Comprehensive Occupational Medical Program for Fire Departments* (NFPA, 2007), it notes that the CFEMS Department Safety Officer is the program administrator (p. 1).

Prior to 2002 and during the past several decades, CFEMS has maintained a number of physical fitness programs used by personnel to maintain their physical wellness. These have ranged from informal, in-station programs self-developed by personnel, to formal programs developed, delivered and maintained by professional fitness program managers under contract to the department. Each fire station has fitness equipment installed to support personnel in their fitness maintenance efforts. Although this equipment varies somewhat from station to station, it typically includes both weight and aerobic training capabilities.

The department has several programs which provide an assessment of physical conditioning. All candidates for career firefighter positions must pass a physical agility test in order to be considered for hire. This test consists of a number of separate events which mimic physical performance that would be required of a firefighter during fireground operations. The primary test is a number of consecutive events in which the candidate must move from one task to the next and is designed as a time limited, pass or fail event.

The department also maintains a physical agility course which operational career firefighters must participate in at least once per year. This course also mimics standard fireground tasks and is completed in full personal protective equipment (PPE) and self-contained breathing apparatus (SCBA). This is a timed event in which the member's total time, SCBA bottle pressure readings and degree of course completion are recorded on, at least, an annual basis. Other than documenting outcomes and measuring trends, the department has not established any criteria which designates desired performance levels and currently does not take any formal actions if personnel show questionable physical performance during the event.

Based on Occupational Safety and Health Administration (OSHA) respiratory protection regulation *29-CFR 1910.134* (OSHA, 2006a), all personnel who may wear SCBA as part of their assigned duties are required to take an annual respiratory clearance test. For most CFEMS personnel this is done as part of their annual health assessment. The few career firefighters who do not participate in this assessment on a mandatory or voluntary basis must still have their respiratory clearance test done through the department's physician vendor. Currently, the only way that CFEMS can proactively remove personnel from active duty status for medical reasons is due to the failure of this test or through a subjective determination that an individual's physical

condition prohibits them from performing the duties and responsibilities of a firefighter as outlined in department policies.

This research is relevant to the United States Fire Administration's objective to reduce the loss of life from fire related hazards with one of the identified target audiences being firefighters (USFA, 2008a). The research also relates to the National Fire Academy's *Executive Leadership* (USFA, 2005) curriculum which is designed to examine contemporary issues of relevance to the fire service and its leaders (SM iii).

Literature Review

In one of the most dangerous professions in the United States, line of duty death and injury rates are considered to be too high with many of these instances directly attributable to underlying health conditions (United States Fire Administration [USFA], 2004). The toll that fire departments pay for these injuries and deaths is very significant with line of duty deaths (LODD) having adverse affects on the firefighter's family and department for many years (USFA, 2002a). But most significantly, firefighters normally function in teams and when a team member suffers an acute health problem during job related functions, it puts other team members and the civilians that they are serving at risk for injury or death (National Fire Protection Association [NFPA], 2007). As noted in *Fit for Duty*, "if one crew member goes down it will seriously affect the ability of the entire crew to perform the job that they have been called on to do" (Krueger, 2008).

During the past several decades increasing emphasis has been placed on firefighter safety, health and fitness (Carter & Rausch, 1989). The development of the National Fire Protection Standard 1500; *Fire Department Occupational Safety and Health Program,* in 1987 acknowledged a growing alarm with the number of firefighters dying or becoming disabled due

to occupationally related injuries and illnesses (NFPA, 2006). The fire service's acknowledgment of this problem has led to research being conducted as to the causative factors that influence line of duty death and injury rates. When analyzing contributing factors from multiple LODD investigations, the frequency of health and fitness problems being identified as the underlying cause of these deaths dominated one study with 53.88% of the incidences attributed to this classification (Moore-Merrell, et. al., 2008). And other studies have consistently shown that the leading cause of death in firefighters is heart attack secondary to heart disease (Carter & Rausch, 1989; USFA, 2002a). The outcomes of these studies have been correlated to negatively affect the public's safety and "should be a national concern" (Federal Emergency Management Agency [FEMA, 2004]).

Firefighters face many occupational risks including stress, overexertion and exposure to toxic smoke and chemical compounds (Haas, et. al. 2003, Hale, 2008) which may contribute to personal health problems. Studies of fire service line of duty deaths, illnesses and injuries have been occurring on a consistent basis for a number of decades. However, in the past 10 to 15 years, these studies have been increasingly more detailed and sophisticated, not only documenting the statistical data, but seeking to identify causative factors which directly contribute to line of duty death and injury rates.

An analysis of calendar year 2007 data continues a trend of showing stress or overexertion as the leading causative factor in fire service LODDs (FEMA, 2008). This category includes medically related conditions such as heart attacks and cerebral vascular accidents (CVAs). In 2007, fifty-five firefighters died as a result of stress or overexertion with 52 of these deaths attributed to heart attacks (p. 15). And while line of duty deaths receive the attention of

the fire service it is estimated that over 1000 firefighters each year suffer cardiac related episodes which are non-lethal, but adversely affect the individual and their organization (Hale, 2008).

But heart attacks and strokes do not develop as a result of a specific incidence of occupational exposure. Research of civilian and firefighter populations clearly indicates that underlying cardiovascular disease has a latency period of years (Hass, et. al., 2003). And the combination of pre-existing medical conditions and a lack of physical fitness in individual members presents fire service organizations with a high level of risk (FEMA, 2004).

The problem of firefighter wellness is not just a personnel concern but also has financial impacts as well. In a report commissioned by the National Institute of Standards and Technology, it is estimated that between $2.8 and $7.8 billion dollars per year are spent addressing firefighter injuries (National Institute of Standards and Technology [NIST], 2004). The reason for the wide range of estimated costs is that few fire departments keep the types of statistical data which permit a clear picture of how this issue is addressed within the American fire service. Among the direct impacts documented which could be associated with firefighter injuries were the costs related to lost wages, overtime wages paid to cover open positions vacated by injured firefighters, medical costs, administrative costs and disability or retirement income that many departments are financially responsible for should an employee be unable to return to duty (p. 15).

While the statistical profile of firefighter line of duty deaths and injuries have been identified and the nature of the problem clearly defined, there is an apparent gap within the fire service between acknowledgement of the problem and action taken to rectify the situation. Based on a 2002 needs assessment of the fire service, it is estimated that almost 800,000 or 73% of the

firefighters in the United States do not have a basic program to maintain their fitness and health (USFA, 2002b). And, as Dr. Michael Webber notes in *Personal Trainer*;

> "Firefighters weigh more, smoke more and exercise less than their male counterparts of the same age. Their cholesterol levels are higher and aerobic capacity is lower than middle-aged men, and both measures tend to get worse over their careers. A study of retired Massachusetts firefighters found that the risk of heart attack and other heart problems was the principal reason for leaving the force" (Webber, 2007).

National research estimates that fully one half of the American public is considered to be obese. Noted fire service leader, innovator and author James O. Page reflected that the American fire service mirrors those numbers and "among volunteers and fire chiefs, I suspect we exceed the national average" (FEMA, 2004). Tragically, Page himself succumbed to a sudden, early death while exercising in 2004. Yet, paradoxically, in spite of increased awareness, most fire departments still do not maintain basic health and fitness programs for their members (Hale, 2008) and such programs had actually decreased 11% between 2001 and 2005 (p. 10).

The first question addressed by this paper relates to standards that may guide or recommend fitness for duty practices for use by fire service agencies. The National Fire Protection Association (NFPA) promulgates a number of consensus standards which relate to all aspects of fire prevention, safety, emergency response and fire service management. The NFPA standards making process, which results from work from volunteer technical review committees, has generated several fire service standards which relate to health, wellness and fitness for duty within the fire service (Barr & Eversole, 2003). NFPA 1500, the *Standard on Fire Department Occupational Safety and Health Program* was first published in 1987 as a derivative of the NFPA 1001, *Firefighter Professional Standards* and sought to address occupational safety and

health programs in the fire service (Carter & Rausch, 1989; NFPA, 2006). NFPA 1001 was the first NFPA standard to include medical standards and physical ability requirements for firefighter candidates (Burkman, 1992). However the document did not address incumbent firefighters. And as the awareness of firefighter health and wellness issues increased in the 1980s, the fire service began to see the need for a more comprehensive standard which addressed all fire service personnel including more detail on firefighter medical and physical requirements (p. 24).

The most recent edition of NFPA 1500 added a number of features to address current and emerging fire department safety practices. Among the changes in the standard is language which addresses fitness for duty evaluations (p. 1500-1). Fire service organizations using this standard to manage internal fitness for duty practices must note language which stipulates that departments should develop physical performance requirements and personnel who are unable to meet these requirements should not engage in emergency operations activities (p. 1500-27).

NFPA 1500 also addresses fitness for duty evaluations specifying that fire service organizations shall assess the ability of personnel to perform essential job functions and that those evaluations shall be conducted by qualified personnel and validated by a department designated physician. This section of the document also specifies that a member who is found to be unable to perform essential job functions shall only be returned to active duty status after a qualified person has evaluated their performance and found that they can perform these functions (P. 1500-28). Chapter 11 of NFPA 1500 is entirely devoted to member assistance and wellness programs and speaks to the need for fire service organizations to develop and maintain comprehensive support programs to deal with substance abuse, stress and other personal problems which may adversely affect their members (p. 1500-28).

First issued in 1992, NFPA 1582 the *Standard on Comprehensive Occupational Medical Program for Fire Departments* (NFPA, 2007), expands on the NFPA 1500 standard providing more detailed guidance on medical requirements for firefighters and administrative standards for fire department physicians (p. 1582-1). NFPA 1582 was also derived from the NFPA 1001 as well as influenced by the development of NFPA 1500. The subcommittee which developed NFPA 1582 was comprised of fire service personnel as well as physicians, consultants and other health professionals (Burkman, 1992).

The 2007 edition of NFPA 1582 provides a clearer delineation of medical and performance requirements for firefighter candidates and incumbent firefighters (p. 1500-1). The document requires fire departments to establish an occupational medical program, inclusive of medical evaluations, for both firefighter candidates and existing personnel. Referencing NFPA 1500, NFPA 1582 expands on the requirements of fire department physicians and defines the expected medical evaluation programs which they are required to manage. Chapter 4; Roles and Responsibilities also notates that when possible, fire service organizations should provide alternative duty assignments for members who are on physician recommended temporary work restrictions (p. 1582-7).

For fire service organizations seeking guidance on the establishment of fitness for duty practices, NFPA 1582 provides descriptions of essential job related tasks for both firefighters and those personnel serving on special response teams, definitions and specifications related to medical evaluations of firefighter candidates and annual fitness evaluations of incumbent firefighters (p. 1582-17). Included in the annual fitness evaluation of existing personnel are criteria for the measurement of body weight and composition with the caveat that the results of any personal fitness evaluations must be measured against an individual’s baseline

measurements and not against any standard (p. 1582-17). This standard also provides fire department personnel who administer fitness for duty programs with an annex providing legal considerations that relate to provisions contained in NFPA 1582 (p. 1582-53).

Designed as a companion standard to NFPA 1582, the *Standard on Health Related Fitness Programs for Firefighters*, designated as NFPA 1583, provides guidance on the development and maintenance of fire service fitness programs (NFPA, 2008). Based on language in NFPA 1500 which specifies that fire chiefs have responsibilities to maintain a department fitness program, NFPA 1583 provides in depth guidance on the administration and maintenance of such programs. This standard indicates that the components of a compliant fitness program should include a designated fitness coordinator, periodic fitness assessments of all members, exercise programs designed to promote fitness and well-being, education and counseling on fitness and health issues, and a process for collecting program data (p. 1583-5).

For departments intent on complying with all standards which relate to member health and wellness, one NFPA standard which addresses hazardous materials response contains language related to physical requirements for personnel. NFPA 471, the *Standard for Recommended Practice for Responding to Hazardous Materials Incidents* (NFPA, 2002) stipulates that personnel performing duties at hazardous incidents must receive medical monitoring prior to and after entry into defined hazardous areas. The document provides physical parameters for the medical monitoring which is to occur and also provides exclusionary criteria should medical monitoring indicate questionable readings of a member's vital signs (p. 471-30).

Although not a consensus standard like those promulgated by the NFPA, the *Guide to Implementing the IAFC / IAFF Fire Service Joint Labor Management Wellness / Fitness Initiative* (IAFC, 2008) has become a source of program guidance within many fire service

organizations. This guide, known in a shorten version as the Wellness-Fitness Initiative (WFI), provides a detailed, step by step process for fire departments to devise and institute a comprehensive wellness program within their organization. Unique in its original approach as a joint labor – management initiative, the WFI guide provides the prospective of why these types of programs are important for fire service organizations from all aspects of the organization, from firefighters up through the fire chief (p. 8). This document is also created to be in coordination with and complimentary to NFPA 1582 (p. 9). The key aspects of the guide include that the design of a program and the resulting personnel evaluations should be confidential and the resulting actions considered to be educational and not punitive. It also stipulates that any program which is implemented must have the full support of both labor and management and that the program should be holistic in nature, taking into account all aspects of personal wellness and fitness (p. 6).

The second research question asks to identify any legal, legislative and or regulatory influences to consider when implementing fitness for duty practices in fire service agencies. Literature research reveals a number of various laws, rules and regulations which fire service organizations must or may consider when implementing fitness for duty practices. Unlike fire service standards which do not carry the rule of law unless adopted by a state or local government, there are several government regulatory agencies which promulgate laws, rules and regulations which fire service organizations must adhere to (Barr & Eversole, 2003). Prior to even hiring a firefighter departments have certain laws to consider. In *Hard Work* (2008), Davis and Sharkey note that the Civil Rights Act and Civil Service Act both initially established that personal merit and physical fitness were the only factors which could be considered when evaluating employees hired by the federal government (p.27). Subsequent orders issued by

several presidents through the 1950s and 1960s expanded these regulations to include non-federal government employees.

In determining fitness for duty as hiring criteria, potential employers must abide by various federal laws and regulations. These include Title VII of the Civil Rights Act of 1964 and Title I of the Civil Rights Act of 1991, both of which prohibit discrimination and note that employment testing must not adversely affect certain protected groups of people (Davis & Sharkey, 2008). Other requirements for hiring which are contained in federal government regulations include the Age Discrimination in Employment Act of 1967, the Civil Services Reform Act of 1978, the Americans with Disabilities Act of 1990 and the Rehabilitation Act of 1973 (p. 28).

Departments employing physical testing to determine fitness for duty as hiring criteria must be aware of adverse impacts. Davis and Sharkey (2008) explain that federal discrimination laws stipulate that groups of people must not be adversely impacted by performance testing. The selection rate for any group of people based on sex, ethnicity or race cannot be less than four fifths (4/5) of the group with the highest selection rate (p. 31). Repeated tests have shown that untrained women have less body strength than men, particularly in the upper body area. There have been multiple legal actions brought against municipal fire departments and local governments over adverse impacts caused by fitness for duty testing prior to employment (p. 170). Departments using physical agility testing to determining hiring eligibility are required to monitor the results to ensure that adverse impacts do not exist. However, the guideline percentiles are fairly arbitrary and departments can establish a business case to justify why adverse impact requirements are not being met during physical testing.

The fire service has long acknowledged that firefighting duties require physical performance that often declines as a person ages. This is exemplified by many fire department requirements and labor management contracts which stipulate a mandatory retirement age. Aerobic studies have shown that fitness declines with age and that even people who maintain active lifestyles and exercise regularly still suffer a two to five percent aerobic decline each decade (Davis & Sharkey, 2008). Most employers must abide by the Age Discrimination Act of 1967 and cannot make hiring or job retention decisions solely based on age. However, the law provides for a bona fide occupational qualification (BFOQ) which essentially states that it is possible to avoid the provisions of this law if it is impossible for people above a certain age to perform the duties associated with their job requirements. Very few employers are able to justify or document a BFOQ but many years ago the U.S. Congress exempted fire and law enforcement organizations from this law using age as a BFOQ (p. 78).

In all cases of fitness for duty testing discrimination can occur without penalty if the discriminatory factor is solely based on who can physically perform standard job functions and who cannot, regardless of race, gender, or physical handicap. To minimize legal exposure, fitness for duty testing which uses physical capability tests must establish validity in that physical performance is a key aspect of job performance and that the testing is designed to predict those who are able to perform the physical job requirements versus those that cannot (Cooper Institute, 2008).

Fire service leaders must also consider and comply with a number of other regulatory laws and standards when managing fitness for duty practices within their organizations. Personnel required to wear respiratory protective equipment as a job requirement must have respiratory clearance testing which is mandated by the Occupational Safety and Health

Administration (OSHA) respiratory protection regulation *29-CFR 1910.134* (OSHA, 2006a). This testing primarily consists of a yearly evaluation of an individual's respiratory system capabilities by a physician.

Employees who may be exposed to high levels of noise are required to receive audiometric testing as mandated by the OSHA occupational noise exposure regulation, *29-CFR 1910.95* (OSHA, 2006b). This testing begins with initial employment when a first test establishes baseline hearing capabilities. Yearly testing is performed with the regulation establishing benchmarks for hearing loss which can occur over a period of time. Employees who leave an organization due to employment separation or retirement must receive a final auditory test to mark their hearing capabilities at that time. Fire service organizations who maintain hazardous materials response capabilities must also adhere to additional OSHA regulations. OSHA *29-CFR 1910.120* is a hazardous waste operations and emergency response regulation which stipulates that employers must maintain a medical surveillance program for employees involved in hazardous materials response activities (OSHA, 2006c).

Organizations adhering to various employee health and safety regulations which result in periodic medical testing and evaluation must also be aware of other regulations regarding the reporting and maintenance of resulting medical data. The *Standards for Privacy of Individually Identifiable Health Information* within the *Health Insurance Portability and Accountability Act of 1996* (HIPAA) (U.S. Department of Health and Human Services, 2006) provides very specific requirements regarding the ability for medical professionals to share private, personal medical information. In most cases, HIPPA requirements prevent fire service organizations from accessing medical information and testing results on specific individuals even though the department is required to provide the medical testing by various regulatory standards.

A number of individual states have adopted legislation which presumes that certain illnesses contracted by fire service personnel are as a result of job-related exposures. These laws typically provide for certain financial benefits when these situations are documented and submitted. At the federal level the *Hometown Heroes Survivors Benefit Act*, which was signed into law in 2003, officially designates specific medical conditions as presumptive, allowing for survivor benefits if a firefighter suffers a line of duty death from one of these medical conditions (Federal Emergency Management Agency [FEMA, 2008).

With the number of laws and regulations in place which influence and impact fitness for duty standards, many fire service organizations have been involved in legal actions addressing specific complaints from individuals or groups of people. These cases range from initial employment testing to fitness standards for existing employees to terminations situations where fire service personnel were fired for various physical impairments (Davis & Sharkey, 2008; Godwin, 1996; Vorlander, 2003).

The next question posed with the research conducted for this paper seeks to identify the desired outcomes of implementing fitness for duty practices within fire service agencies. The implementation and maintenance of fitness for duty initiatives is a risk management function. When conducting risk management activities within fire service organizations, loss of personnel, defined as loss of life, injury or illness suffered by members of a department, is a high priority consideration (FEMA, 1996). Fire service organizations are expected to take reasonable measures to reduce risk to their personnel. This encompasses the protection of personnel from accidents, injuries, occupational illnesses and line of duty deaths. This is done through the assessment of inherent risks and dangers associated with firefighting duties and responsibilities

and taking reasonable actions to provide protection personnel from those risks and dangers (p. 67).

However, research indicates that this is not necessarily being done. As documented in *Heart Disease in the Fire Service: Cause for Concern*, estimates of departments which maintain wellness and fitness programs conducted in 2005 by the United States Fire Administration revealed that only 24% of the fire departments in the United States had such programs in place (Hale, 2008). And the National Institute of Occupational Health and Safety (NIOSH) reports that in departments for which the agency conducted line of duty death investigations, only 57% conducted medical assessments of their members and only 21% of the departments had processes in place to screen firefighters for cardiovascular disease. Further, of these representative organizations, 39% had wellness programs which assisted members with health checks and only nine percent had enacted mandatory fitness programs (p. 10).

Related to implementing fitness for duty initiatives, department managed personal health and wellness programs play a significant role. FEMA notes that a comprehensive health and wellness program should include a number of separate but complimentary components (FEMA, 2004). A well-rounded program should consist of fitness screenings; medical assessments; a physical fitness program which addresses strength, flexibility and cardiovascular health; behavior modification to assist members with diet, exercise, smoking cessation and systemic health problems; education; and applicant screening criteria (p. 35). The *Health and Wellness Guide for the Volunteer Fire Service* (FEMA 2004) further recommends that members receive pre-fitness program screenings based on guidelines put forth by the American College of Sports Medicine (p. 35). The guide also asserts that members receiving health assessments which reveal underlying health problems should be considered for suspension from normal operational duties;

not to be enacted as a form of punishment but rather for the safety and health of the affected member, other department members and the public (p. 36).

NFPA 1583, the *Standard on Health Related Fitness Programs for Firefighters* contains very similar recommendations (NFPA, 2000). Within this document the recommended program components include that departments maintain a qualified health and fitness coordinator, conduct periodic fitness assessments, maintain an exercise program for members, provide education and counseling for health related issues and maintain a system for collecting data relevant to the program and its outcomes (p. 1583-5).

The International Fire Service Training Association (IFSTA) references wellness and fitness program management in the third edition of *Fire Department Company Officer* (Goodson & Snead, 1998). In the chapter identifying the make up of such programs the authors write that a comprehensive wellness program consists of medical surveillance, physical fitness and an employee assistance program (EAP). The chapter also documents the need to keep records of the results of medical exams, fitness testing, occupational illnesses and injuries and workplace exposures (p. 312). In managing fitness programs, the authors note that department programs should follow the NFPA 1500 standard and should include a strong cardio-vascular component to permit personnel to meet the stress of performing their duties.

Another guide for fire service leaders to refer to in determining program outcomes is the *Guide to Implementing the IAFC / IAFF Fire Service Joint Labor Management Wellness / Fitness Initiative* (IAFC, 2008). Among the noted outcomes of program implementation, this guide stipulates that although a program may be mandatory for department members it should be mutually agreed upon by labor and management prior to execution. The document also recommends that any comprehensive wellness program must allow for age, gender and

assignment within the organization and should be supportive and not punitive in nature. Further, the program's design should sustain participating personnel with facilities and equipment and include remedial support and rehabilitation of those that may need it. Finally, the program design should include training and education components for participating personnel (p. 6).

The physiological stress that firefighters experience while performing normal duties and activities is significant. Several studies which have measured the amount of oxygen consumption as volume of oxygen per minute (VO_2/min.) among firefighters performing fireground tasks, have shown that the combination of physical exertion coupled with the weight of a firefighter's personal protective equipment (PPE) significant increases the rate of oxygen consumed per minute (Sykes, 2002). These studies have shown that a firefighter's relative fitness level is reduced by thirty percent just due to PPE and breathing apparatus. Maximum VO_2 capacity has been found to be predicted by one's physical conditioning and several studies validate that maximum VO_2 declines with age (p.23).

One recent study sought to quantify the cardiovascular stress placed on firefighters during dangerous situations. Using real time data gathered from 56 members of the Indianapolis Fire Department, researchers found that firefighters experienced higher levels of cardiovascular stress when they or civilians were in imminent danger (Study Measures, 2008). The study also validated that volunteer firefighters are at more risk for suffering heart attacks than career firefighters and that relatively inexperienced firefighters suffered from greater incident induced stress than experienced firefighters. The study went on to recommend that firefighters should participate in both aerobic and anaerobic exercise which imitates the physical demands of firefighting tasks.

As heart disease and related factors continue to be documented as a leading cause of fire service deaths and illnesses, more research is being conducted as to causative factors. One qualifier in these studies is the healthy worker effect. This effect acknowledges that many fire departments screen applicants for underlying cardiovascular diseases and do not hire those that are identified as being at risk (Hale, 2008). Taking this effect in account a hypothesis then becomes that firefighters should produce lower instances of cardiac related mortality and morbidity due to being in better physical condition (p. 2). However, an analysis of various other fire service related morbidity studies, which took the healthy worker effect into account, found that there is a strong correlation between firefighting and the risk of death from heart disease (p.3).

Another indicator of relative fitness employed by many fire departments is body mass index (BMI) or the ratio of fat to lean muscle in one's body. One quick and simple BMI indicator is a standard table of height and weight which predicts an individual's BMI based these factors. Sykes (2002) notes that this system is not full proof and can provide false readings in well muscled people (p.23) and that "the measurement of body fat is not straightforward and the margins of error can be substantial". However, excessive body fat creates a number of inherent performance and health problems for firefighters including decreased aerobic fitness, mobility and heat dissipation. It also exposes people to orthopedic, metabolic and other health problems which may pose hazards to active firefighters. Sykes (2002) writes that the determination of removing a firefighter from active duty due to obesity is not a clear-cut decision and that additional other medical and physical conditioning factors should be taken into account when making this type of determination of fitness for duty (p.23).

Empirical results indicate that firefighters may not maintain themselves in as good a physical condition as the public or they may believe. Physical evaluations of firefighters by fitness program managers indicate that they are largely reflective of the public in general meaning that they are not in optimal physical condition (Krueger, 2008). While many fire service organizations do provide support of physical conditioning in the form of fire department maintained exercise equipment and facilities, many firefighters do not take advantage of these resources (p. 5).

Age is also a factor in assessing fitness for duty. Although legal rulings have been issued which permit departments to maintain mandatory retirement age requirements (Davis & Sharkey, 2008), the age of a firefighter relative to their fitness level still remains a consideration. Studies conducted have revealed that although age is not a definitive factor in fireground performance, it is a determining factor in predicting performance (Findley, et. al., 1995). Thus, the physical demands of firefighting can logically be assumed to place more stress on older firefighters than younger ones and physical performance will decrease with age if physical conditioning is not maintained by an individual as they age (p.259). Among several studies, commonality was established in that VO_2/max and muscle strength declined with age even in firefighters who maintained good physical conditioning (p. 260).

Various studies have established that one primary risk to the health of firefighters involves the condition of being sedentary (e.g. sleeping) and then having to perform at a very high aerobic level in a very short time. Most medical experts agree that this common situation places firefighters at risk of suffering from the onset of acute medical problems. The chemicals released in the human body during intense periods of physical activity and stress, which may come after long periods of relative inactivity, places firefighters are risk of acute myocardial

infarction episodes (Hale, 2008). Numerous epidemiological studies of the general population have documented that heavy physical exertion triggers heart attacks (p. 5). Acknowledging this, author Bruce Carter notes in *Active Ingredients* that "the key to mitigating this stress is improved fitness: having a lower standing heart rate, a lower level of LDL cholesterol and a healthy blood pressure, as well as maintaining an appropriate body weight and percentage of body fat" (Carter, 2006).

Independent analysis of firefighter morbidity and morality rates often results in program recommendations similar to those of fire service standards making bodies (Hale, 2008). These studies stipulate that fire service organizations should implement fitness for duty programs which provide for medical evaluations which validate that candidates are physical capable of performing firefighting duties and ensure that physicians who are conducting these evaluations are knowledgeable in the physiological aspects of firefighting and understand the tasks which firefighters perform (p. 8). Additional recommendations include that departments should implement programs which promote physical fitness and are designed to reduce the risk of cardiovascular disease and increase firefighter's cardiovascular capacities. It is also recommended that department practices include fire ground procedures which maintain staffing on apparatus which reduces the potential for overexertion of members and provide on-scene rehabilitation which ensures that personnel are monitored for excessive cardiovascular strain and are rehydrated and cooled prior to being placed back into active duty (p. 9).

In addition to determining desired outcomes for fire service health and wellness programs, departments which implement such programs may measure results to validate their financial investment. The *Fire and Emergency Medical Services Ergonomics Manual* (USFA, 1996) notes that program success can be measured in terms of increased employee productivity,

decreased incidences of absenteeism, and reduced medical insurance and worker's compensation costs (p. 10-1). Program effectiveness should be evaluated through the collection and analysis of statistical data to include injury rates, severity of injuries, cost of injures and work related illnesses due to time lost from work, and worker's compensation payments (p. 10-2).

The final research question asks what methodologies other fire service agencies are using to manage fitness for duty practices in their organizations. This question is largely addressed by the questionnaire outcomes which are noted in the results section of this paper. However, literature research and a polling of fire service organizations also reveal a number of outcomes which provide indication as to how fire service organizations may manage these programs.

One primary guiding document addressing fitness for duty criteria for use within fire service organizations is the *Guide to Implementing the IAFC / IAFF Fire Service Joint Labor Management Wellness / Fitness Initiative* (IAFC, 2008) also known as the Wellness – Fitness Initiative (WFI). This guide is premised on a basic tenet that a comprehensive wellness and fitness program should be multifaceted and supported by all aspects of a department's management and labor structure. The guide's mission statement notes that any information gathered relative to individuals should remain confidential and that fitness and wellness evaluations are for educational and rehabilitation purposes and should not be punitive in nature. The mission statement also stipulates that labor and management should implement a program which results in positive, individualized programs for department members and that any performance testing done within the program should advance progressive improvement. A holistic approach consisting of medical evaluations, fitness programs, rehabilitation services, and behavioral health is encouraged (p. 6). In developing WFI, the International Association of

Firefighters worked with the NFPA 1582 Technical Committee to ensure consistency between the two documents (p. 9).

WFI has been used by a number of fire service organizations since its inception in 1996. The document provides information and guidance on the implementation of a comprehensive program consisting of medical evaluations, fitness assessments and programs, rehabilitation services for member's returning from illness and injury, behavioral health, data collection and maintenance, cost justification and program implementation (p. 3). Additionally, various agencies and research groups have studied firefighter fitness from the aspect of determining testing which can predict people who are physically fit to meet the demands of firefighting activities. A number of different tests are available to use for this purpose (Sykes, 2002) with most measuring aerobic and strength capabilities based on physical tests which mimic firefighting tasks.

The literature research conducted indicates that a number of fire service organizations maintain written policies, procedures and standard operating guidelines which address various aspects of fitness for duty criteria. One common method of addressing fitness for duty standards within fire service organizations is to establish a medical monitoring program for employees. The Coppell Fire Department in Texas developed a fit for duty medical examination in 1994 (Godwin, 1996). The Cobb County, Georgia Fire Department maintains a Physical Performance and Fitness Assessment Policy (Cobb County Fire Department, 2003). This policy dictates that department personnel are required to participate in annual physical assessments (p - 2.2.4) which are scored and weighted as to performance levels of the personnel. The document also makes work assignment provisions for employees who do not maintain a certain level of physical

fitness and also provides direction for employees returning from extended absences due to illness or injury (p. – 2.26).

Montgomery County Fire and Rescue in Montgomery County Maryland has a detailed guideline which addresses fitness for duty in a number of related areas (Montgomery County Fire and Rescue, 2001). This comprehensive document contains sections which address periodic health assessments, fitness for duty evaluations, return to work clearance processes, Americans with Disabilities Act application of reasonable accommodations and the evaluation of personnel who may be candidates for light duty assignment (p. 44-8). Norton Shores Fire Department in Norton Shores, Michigan has developed an illness and injury reporting policy (Norton Shores Fire Department, 2007). The policy and procedure language contained within outline employee requirements for reporting illnesses and injuries and the conditions under which they may return to work inclusive of a physical ability test for operational personnel (p. 2).

The fire department in Olathe, Kansas has enacted an administrative policy entitled *Physical Fitness and Wellness Program* (Olathe Fire Department, 2005). The policy outlines the various aspects of a program that the department has developed and clearly indicates that the program incorporates the *IAFF / IAFC Fire Service Joint Labor Management Wellness / Fitness Initiative* into the department's practices (p. 1). The policy indicates that the department provides on duty personnel time to exercise and supports them with equipment and facilities to do so (p. 3). The policy also outlines the fitness assessment criteria which is used and provides for a personal day (i.e. day of leave from duty) for all employees who score in the top 25 percentile of performance (p. 4).

Lincoln Fire and Rescue in Lincoln, Nebraska maintains a *Fitness for Duty Policy* which provides guidance on physical fitness requirements for newly hired personnel, those returning

from illness or injury and to screen for personnel seeking a disability pension (Lincoln Fire and Rescue, 2005). The policy provides a detailed procedure for employee physical fitness testing and outlines the processes which will occur if an employee fails one or more physical ability tests, including termination of employment based on state workers compensation laws (p. 2). The Irving, Texas Fire Department has a procedure entitled *Physical Fitness Program* (Irving Fire Department, 2008) which provides department members with guidance on medical examinations, physical fitness testing criteria, and the requirements of employees who fail to successfully perform in the fitness testing.

Spokane Fire District 10, a small fire department with career and volunteer members, has developed a *Fitness for Duty* procedure which includes information on an annual work test which all members must participate in, physical fitness expectations and expected outcomes of members who fail the minimum performance requirements that the department maintains (Spokane Fire District, 2008). Minimal levels of medical fitness for duty are provided in a procedure developed by the Prospect Heights Fire District in Prospect Heights, Illinois (Prospect Heights Fire District, 2007). This document also refers to annual medical exams which are required for each department member and notes that the department follows NFPA 1582 guidelines for incumbent firefighters and officers (p 2).

Procedures

The descriptive research conducted for this paper was focused on addressing the primary questions noted in the problem statement. The objective of the literature research performed was to discover published works and technical documents which addressed fitness for duty criteria in the context of fire service applications. This was inclusive of identifying fire service fitness for duty standards, guidelines and or criteria; noting any legal or regulatory documents which may

affect or influence the implementation of fitness for duty practices in fire service agencies; researching potential outcomes of fitness for duty practices; and describing methods used by fire service agencies to manage and maintain fitness for duty practices in their organization.

In support of this research a questionnaire was developed to acquire information from fire service agencies as to their application of fitness for duty practices within their organization. The responses receive permitted this author to corroborate the literature research conducted and address specific research questions posed in the problem statement. Additionally, an interview was conducted with a fire department human resources manager to substantiate the literature research and gain insight as to the application of fitness for duty criteria in the author's fire department. Requests were also sent to various fire departments asking for documentation of their policies, procedures and or practices as related to the question of how other departments manage this issue.

The literature research began with a search of pertinent literature at the National Fire Academy's Learning Resource Center (LRC) during attendance of the Executive Leadership class in April and May of 2008. Using the problem statement, a number of searches of the LRC computerized card catalog were conducted. Search terms which were used included fitness, fitness for duty, risk, physical fitness, fitness standard, and a number of variations and or combinations of these terms.

Additional documentation was obtained through a request for fire service organizations to provide examples of their policies, procedures, standards and or guidelines for administering fitness for duty programs. This request was posted to an e-mail list server maintained by the United States Fire Administration. The TRADENET participants list consists of fire service professionals that are associated with the Training Resource and Data Exchange (TRADE)

program managed by staff at the National Fire Academy. This group contains training and educational personnel from the American fire service and exists to facilitate the exchange of training-related information and resources among its members (USFA, 2008b). A request to provide these documents was posted in the June 17, 2008 edition of TRADENET.

A questionnaire was developed using the SurveyMonkey Internet website. This web site is a subscription service which provides for the construction, distribution, analysis and reporting of statistical data for use in research. The questionnaire was constructed to provide insight from fire service agencies on their use of fitness for duty standards and how this use affected the organization. Further, the questionnaire was designed to assess outcomes derived from use of fitness for duty standards or criteria and to provide demographic data from the departments and personnel participating.

The questionnaire was provided to those who elected to take part via an Internet uniform resource locator (URL) provided by the SurveyMonkey website service. The author distributed an invitation to participate through a series of personal and professional contact systems inclusive of personal e-mail lists of professional acquaintances, fire service e-mail list servers, and the National Society of Executive Fire Officers website. Two primary e-mail list servers were used; the Metro Fire Planners group and TRADENET. The questionnaire was available on the SurveyMonkey website from July 24 through September 2, 2008. The results of the questionnaire are summarized in the results section of this paper. A request to participate in this survey was posted in the July 31, 2008 edition of TRADENET.

Metro Fire Planners is a group of fire service professionals from metropolitan sized (i.e. 400 members or more) fire departments within the United States and Canada. This group presents and discusses fire service issues using an e-mail list server discussion board maintained

by Yahoo Groups®. Whenever a member of the group poses a question, the question is sent via e-mail to the other members and posted to the Yahoo Groups® website. A request to participate in the questionnaire was made to the group using this list server.

To provide additional insight into how Chesterfield County Fire and EMS manages fitness for duty processes within that department, an interview was conducted with Captain Steve Hall who serves as a supervisor of the Human Resources Unit. Captain Hall has a degree in Human Resource Management from the University of Richmond and provides management oversight of staff personnel who administer all human resource related tasks for the organization. Captain Hall has been involved in addressing a number of fitness for duty issues within the organization, inclusive of the sudden death of an active duty captain, and several other duty related illnesses and injuries which have led to disability retirements. Captain Hall has an extensive working knowledge of federal and state public safety benefit awards and has been involved in administering the department's health assessment program.

The interview with Captain Hall was prearranged by way of a conversation outlining this research project and was confirmed through an e-mail appointment. The questions for discussion during the interview were provided to Captain Hall before the interview was conducted. The interview occurred on Friday, August 8, 2008 at the Chesterfield County Public Safety Training Center.

There are limitations to this research in that the responses to the questionnaire were not validated through other research methods and the outcomes should be interpreted as such. It is also assumed that the responses to the request for input to the questionnaire were voluntary and arbitrary. Replies to the questionnaire were not controlled or limited in any way by the

technology employed and it is possible that a single person could respond to the questions more than once or potentially provide inaccurate answers.

Results

In addition to literature research, several other research tasks were conducted to address the problem statement and questions posed in this work. An interview was conducted with Captain Steve Hall who serves with Chesterfield Fire and Emergency Medical Services (CFEMS) (personal interview, August 8, 2008). Captain Hall's present assignment is to provide management oversight to the department's Human Resources Unit.

To provide background as to Captain Hall's duties and responsibilities and an overview of the responsibilities of his work unit, Captain Hall was asked to describe his duties in managing human resources for the organization. Captain Hall responded that his work unit was responsible for all recruitment and retention of personnel, the testing and hiring of new employees, and management of human resource related policies and procedures. Additional responsibilities are the administration of all health and wellness initiatives inclusive of the organization's respiratory clearance, hearing, fitness and annual health assessment programs. The work unit also administers all compensation and benefits, and workers compensation programs.

Captain Hall was asked if he was familiar with any fitness for duty criteria within the fire service. He responded that he was not familiar with what other fire service organizations were doing but that he was familiar with the National Fire Protection Association *Standard on Comprehensive Occupational Medical Program for Fire Departments* (NFPA, 2007). Captain Hall also noted that he was very familiar with the fitness for duty related programs maintained by CFEMS.

To provide a context for the remaining interview questions Captain Hall was asked what the term fitness for duty meant to him. He responded that this term meant “someone ready to do the job and not be a risk to themselves or anyone else; physically capable.” Captain Hall was then asked as to whether CFEMS had, what he considered, fitness for duty standards or practices in place. He noted that the department did have some practices in use by did not strictly adhere to any standards. When asked to elaborate he responded that the organization provides an annual health assessment program for career employees. This program is mandatory for all employees hired after March of 2002 and voluntary for all others except those participating in a career development program, and members of the hazardous materials incident response team which are assessments mandated by federal law. Of the overall population of career firefighters, including those mandated to participate in the program; Captain Hall estimated that the department had an overall compliance rate of 98% of members participating in the annual health assessment program.

Captain Hall spoke about the annual fitness program including respiratory clearance testing which is mandated by the Occupational Safety and Health Administration (OSHA) respiratory protection regulation *29-CFR 1910.134* (OSHA, 2006a). The program also includes audiometric testing as required by the Occupational Safety and Health Administration (OSHA) occupational noise exposure regulation *29-CFR 1910.95* (OSHA, 2006b).

As further evidence of fitness for duty criteria being employed, Captain Hall also cited the department’s fitness procedure which calls for on duty operational personnel to devote time each day to physical exercise. The department also conducts physical testing of career firefighter candidates as a pre-requisite to being hired. Captain Hall also mentioned the application of a

body mass index (BMI) standard as a hiring requirement which was initiated in 2002 when the mandatory yearly physical assessment requirement was added for newly hired personnel.

Having been provided an overview of fitness practices within CFEMS, Captain Hall was asked how these criteria and practices were developed within the organization. He cited OSHA regulations as the genesis for the respiratory and hearing testing. He also noted that mandatory physical assessments for specific personnel initially began as a result of the department maintaining a hazardous materials incident response team. As required by the Occupational Safety and Health Administration (OSHA) hazardous waste operations and emergency response regulation *29-CFR 1910.120*, employers are required to maintain a medical surveillance program for employees involved in hazardous materials response activities (OSHA, 2006c). This program eventually was expanded as a voluntary program for all career firefighters as a result of a recommendation from the medical physician who administered the program.

Captain Hall noted that over the years the organization has elected to change the health assessment from voluntary to mandatory for those personnel hired after 2002. A large influence on this decision was the development of a cancer presumption clause in the *Commonwealth of Virginia's Workers' Compensation Act.* The language in that act provides for the presumption of certain cancers, respiratory and heart illnesses and disease processes to be as a result of active firefighting duties (Commonwealth of Virginia, 1991). In order for personnel or their survivors to make claims under these provisions they must have undergone pre-employment physical assessments and found to be clear of the illness or disease process for which they are filing a claim. Captain Hall advised that the department elected to make annual physical assessments mandatory in 2002 to provide for early detection of underlying illnesses and to present a better basis for personnel who may file future claims under this law.

In addressing the department's physical fitness program, Captain Hall noted that the present program developed informally from personnel who had an interest in physical fitness and understood the value of firefighters maintaining good physical conditioning. Over the years this program has evolved into a formal effort which has been managed by contract vendors who oversee the program development and delivery to personnel.

Captain Hall was asked whether the fitness for duty efforts being employed by CFEMS had uncovered any personnel with underlying medical conditions which resulted in the affected employee being a risk to themselves or those that work around them. Captain Hall answered that there were several instances of the initial and annual assessments revealing such instances. He noted that provisions of the *Standards for Privacy of Individually Identifiable Health Information* within the *Health Insurance Portability and Accountability Act of 1996* (HIPAA) (U.S. Department of Health and Human Services, 2006) prevented the department from knowing of all of the instances where significant medical conditions were diagnosed as a result of the annual health assessment program. Any such results shared by the employee with the department are done on a strictly voluntary basis.

The previous question was expanded upon to ask whether the fitness for duty activities within the organization had identified a medical condition which resulted in an employee not being permitted to work in an active duty environment. Captain Hall replied that employees had been identified with medical conditions which resulted in a temporary suspension from active duty. He noted that this situation was usually as a result of an individual failing a respiratory clearance test and that those instances were typically cleared up relatively quickly. Captain Hall expanded this explanation to note that legally, the only situation in which the organization could remove an employee from active duty status due to an underlying medical condition was due to

the failure of a respiratory clearance test. No other medical conditions are stipulated as a mandatory removal from active duty within the department's existing policies and procedures.

Captain Hall was then asked to clarify how the department handles instances of employees failing these tests and what was done with the employee while they were medically non-compliant. He responded that although there is no formal procedure outlining management of these situations, the practice has been that the department places the employee on medical leave until the underlying problem is addressed and the employee is able to pass the test. Captain Hall also offered that the respiratory clearance testing process provides the physician with some latitude in whether an employee passes or fails a test. He noted that although the process involves a breathing test, the physician can take other factors into account as to whether an employee is capable of safely wearing respiratory equipment in hazardous environments.

As Captain Hall verified that the department does not have established criteria for managing employees who are incapable of working in an active duty environment for short periods of time, he was asked about the same situation with employees who are physically incapacitated for long periods of time. Captain Hall noted that there were no organizational procedures addressing these instances except for cases where the illness or injuries were covered under workers compensation provisions. In managing employee absences due to on-duty injuries, workers compensation laws are applicable guidelines for the department's use and the organization maintains procedures for managing employees capable of working in a light or restricted duty assignment.

Captain Hall was then asked about his greatest concern when managing his areas of responsibility related to employee health and fitness for duty. He answered that his biggest worry was that the department did not have an overarching approach which addresses fitness for duty in

a comprehensive fashion. He noted that current policies and procedures only speak to specific areas of employee health and fitness and nothing strategically guides the organization. But Captain Hall then mentioned that if the department had such an overarching policy, his next greatest concern was that the implementation of such a program could then result in large number of people who were suddenly unable to meet the physical aspects of a firefighter's performance requirements.

Finally, Captain Hall was asked what he would do to improve upon the fitness for duty related policies, procedures and practices currently employed by CFEMS. He answered that he recommends development of a physical standard for pre-employment hiring to eliminate subjective decision making and to avoid potentially hiring someone who is not fit for firefighting duties. He also suggested the development of a department standard or protocol to assist in identifying employees who may be at risk for acute health problems and, within this document provide guidance as to how the organization would deal with personnel in these situations.

Additional research was conducted in the form of a questionnaire which was constructed and made available to fire service organizations. The intent of the questionnaire was to primarily address research question four; what methodologies are other fire service agencies using to manage fitness for duty standards in their organizations. The solicitation for participation and questionnaire distribution methodologies are noted in the procedures section of this paper. Fitness for duty was defined in the introductory section of the questionnaire. A fairly broad definition was provided to enable the results of the questionnaire to demonstrate how departments defined fitness for duty and evaluate how widespread the use of fitness for duty practices is within the fire service. The introductory definition is noted in the appendix section of this paper. One hundred and twenty people participated in this questionnaire.

Question one was designed to establish whether those participating in the questionnaire had existing organizational practices which addressed fitness for duty. Specifically this was done by inquiring whether the department had documentation which addressed this subject. All 120 participants answered this question with the vast majority (92.5%) indicating that their organization did have fitness for duty standards which were addressed in this manner.

Having established that a large majority of the questionnaire participants did maintain fitness for duty practices within their organizations, question two sought to define the format in which fitness for duty practices were maintained. Respondents were instructed to check all answers which were applicable. The responses to this question were evenly distributed indicating that departments used a number of different formats in which to document their fitness for duty standards and criteria. The most prevalent responses included medical protocols and organizational policies, procedures and standard guidelines.

With the use of fitness of duty practices identified and the methods with which fire service organizations documented those practices, question three was presented to determine which types of personnel the fitness for duty practices were applied to. The vast majority of respondents indicated that fitness for duty practices were applied to both newly hired personnel as well as existing personnel.

Question four was designed to determine which influences were present when fire service organizations designed and implemented fitness for duty standards or practices within their departments. A number of different criteria were provided and respondents were instructed to answer all examples which were applicable. The largest influence of fitness for duty implementation indicated by the respondents, within the criteria provided, was fire service

consensus standards. The remaining criteria were relatively equal with organizational standards and practices and legal considerations tied for the next largest percentage of selections.

Question five was posed to determine the type of testing criteria used in the respondent's department. Since many fitness for duty programs consist of more than one type of physical or mental testing aspect, participants were instructed to select all that applied to their respective program. Medical screening, physical testing and drug and alcohol screening were indicated to be in use by a large majority of the respondents. Mental acuity and psychological testing were indicated as in use by far fewer of those participating in the questionnaire.

One potential outcome of fitness for duty practices within fire service organizations is the possibility that one or more aspects of testing will uncover an underlying problem with personnel which may affect their ability to perform their job functions. Question six was designed to determine whether the respondent's organizations had any type of guidelines or systems in place to address these circumstances. Slightly greater than 50% of the participants in the questionnaire indicated that their organizations relied on the recommendation of a medical professional as to whether personnel could remain on active duty or should be removed. Far less respondents indicated that their organizations had set parameters which guide these decisions and slight more participants indicated that their organizations addressed these situations on a case by case basis.

Another potential outcome of establishing fitness for duty standards within organizations is the possibility that the testing or performance criteria will identify an underlying medical condition (e.g. cardiovascular risk) which may result in a long term or permanent absence from active duty. Question seven was developed to assess how fire service organizations deal with these situations. Of the possible responses provided to the participants, a majority of 33.6% indicated that this situation would result in a disability retirement for the affected individual. The

next largest response percentage was the other category which generated a number of varying responses to the question which are noted in the appendix section of this paper. Owing to the complexity of this outcome of fitness for duty implementation in fire service organizations, the responses in the other category varied widely.

Taking into consideration the previous questions which addressed fitness for duty practices potentially identifying underlying medical conditions or performance problems within individuals, question eight was added to the questionnaire to determine whether this had actually occurred within the respondent's organization. Acknowledging the sensitive nature of personal health and the federal laws which regulate the release of medical information, consideration should be given to the fact that the participants of the questionnaire answering this particular question may not be aware of all instances of this occurring within their departments. Of the 111 people who answered this question slightly more than 50% indicated that the fitness for duty practices in their organization had identified a condition which potentially jeopardized the well being of the affected individual or those working with him or her. Approximately 14% indicated that they were unsure if this had occurred.

Question nine was constructed for those participants who answered no to question one (i.e. does your department maintain policies, procedures, guidelines or protocols that address fitness for duty for personnel?) in an attempt to determine the reason why the response to question one was negative. Given that the vast majority of the questionnaire participants answered affirmatively to question one, only 14 respondents participated in this question. An equal number of respondents (21.4%) not choosing the other category indicated that they were either not aware of the need for fitness for duty practices within their organization, or were aware of the need but chose not do maintain a program of this type.

Question ten is one of several questions designed to provide a demographic profile of the participants and their organizations. This question was designed to determine the type of fire service organization that the participants represented. A majority of 65.8% indicated that they represented a career organization. The second highest response indicated that they responded on behalf of a combination (i.e. career and volunteer) organization. Only six respondents represented strictly volunteer departments.

Continuing to define the demographics of the questionnaire respondents, question 11 was presented to provide a profile of the size of the departments responding to the questionnaire by virtue of identifying the population served. Slightly more than 40% of the participants indicated that their organization protected a population of between 25,000 and 100,000 people. The next largest response at 31.5% was from people who answered the questionnaire on behalf of departments who protect more than 100,000 people. Nine participants did not answer this question.

The final question was intended to determine the rank of personnel who participated in the questionnaire. A majority of 63% of the participants indicated that they held the rank of firefighter. The next largest number of participants was company officers with 24.3% of the participants. It should be noted that 17% of the participants, equal to 19 people, indicated that they held the rank of chief of the department. Acknowledging that there are no fire service standards for the naming of particular ranks, chief officers (i.e. battalion chiefs and above) participated in overall numbers slightly greater than the firefighter rank. This is an important differentiation as it may be assumed that chief officers would have a thorough understanding of fitness for duty practices within their respective organizations.

Discussion

The firefighting profession, whether one serves as a career or volunteer firefighter, is a dangerous vocation filled with physical and mental stresses which can adversely affect one's health (IAFC, 2008; Sykes, 2002; USFA, 2004). Firefighter deaths attributed to line of duty activities continue to remain at unacceptable levels (USFA, 2004). Line of duty deaths and injuries not only affect the member and their families but the member's department as well (USFA, 2002a). And when a firefighter suffers a debilitating injury or sudden death during firefighting activities, the member's co-workers and the civilians that they are serving may also be put at risk (Krueger, 2008; NFPA, 2007).

Although Hollywood may depict a heroic end for firefighters where they sacrifice their lives saving innocent civilians from the clutches of a raging fire, the statistical picture of line of duty deaths, illnesses and injuries is far less romantic. Multiple studies of firefighter deaths and injuries conducted over several decades have consistently reached the same conclusion; firefighters die in the line of duty from underlying health related problems more often than any other cause (Cater & Rausch, 1998; Moore-Merrell, et. al., 2008: USFA, 2002a). And the vast majority of these health problems tend to be related to cardiovascular disease which the medical community identifies as typically having a lengthy latency period prior to a catastrophic event occurring (Hass, et. al., 2003).

However, in spite of marked improvements in data collection and related research on firefighter health, all of which paints a very clear picture of the primary causative factors related to firefighter line of duty deaths (Moore-Merrell, et. al., 2008), the fire service has yet to widely embrace the need for fitness for duty programs within their organizations. Many fire departments simply do not provide the emphasis on physical conditioning that is necessary to ensure healthy,

fit firefighters (Hale, 2008; USFA, 2002b). In fact, some voices within the American fire service point to the fact that the typical firefighter physical profile is opposite of what one would think it should be and that many firefighters are overweight and out of shape (FEMA, 2004; Hale, 2008; Webber, 2007). Although these observations may be empirically accurate, this situation is counterintuitive to the identified physical and mental demands that firefighting places on individuals.

Line of duty deaths and significant injuries and illnesses related to fire service operations are devastating for firefighters, their families and their organizations, exacting an emotional toll on everyone involved. However, beyond the personal impacts, there are also financial considerations. Billions of dollars are spent each year by fire service organizations which suffer service related deaths, illnesses and injuries (NIST, 2004). Departments evaluating the financial commitment necessary to provide fitness for duty programs may wish to assess the cost versus benefit of proactively establishing health and wellness programs in lieu of potentially suffering a costly and devastating line of duty death or disabling illness within their organization.

Acknowledging that the primary causative factor for the majority of line of duty deaths has been identified as underlying health problems; more specifically cardiovascular disease, and that physical conditioning programs are lacking within the American fire service, one could project that many of these deaths and serious illnesses are preventable (Krueger, 2008; USFA, 2002a). Logically, for a fire service leader interested in taking a proactive approach to this problem, the question then becomes what resources are available to do so?

Research conducted for this paper indicates that there is no single specific approach for fitness for duty within the American fire service. A number of departments enact fitness for duty programs and have policies, procedures and practices in place to address various aspects of this

problem. However, those fire service organizations considering implementing fitness for duty practices do have a number of resources from which to derive information and guidance from. There are also a number of legal considerations that relate to employee health and safety as well as to hiring and testing practices.

Consensus standards can provide the foundation for the implementation of fitness for duty standards within fire departments (Barr & Eversole, 2003). Based on language contained in the National Fire Protection Association (NFPA) *Standard for Professional Firefighter Qualifications* (i.e. NFPA 1001), several fire service health and safety standards were developed in the nineteen eighties and early nineteen nineties which expanded on the implementation of fitness for duty practices within the fire service (Burkman, 1992; Carter & Rausch, 1998).

The primary and most effective source of guidance from standards making bodies comes from the NFPA. Departments intent on addressing fitness for duty from a comprehensive perspective should refer to NFPA 1500, the *Standard on Fire Department Occupational Safety and Health Program* (Carter & Rausch, 1998; NFPA, 2006), NFPA 1582, the *Standard on Comprehensive Occupational Medical Program for Fire Departments* (NFPA, 2007), and NFPA 1583 the *Standard on Health Related Fitness Programs for Firefighters* (NFPA, 2008) all of which address firefighter safety, wellness and fitness in a comprehensive fashion. The latter two of these standards were developed specifically to expand upon fitness for duty guidance for departments wishing to develop and implement such programs.

While not specifically a formal fire service standard, the *Guide to Implementing the IAFC / IAFF Fire Service Joint Labor Management Wellness / Fitness Initiative* (IAFC, 2008) can also provide fire service leaders with a sound plan from which to implement a wellness and fitness program within their organization. This guide provides very detailed information on the

implementation and maintenance of wellness and fitness programs and was designed to complement NFPA 1582 (p. 9).

As noted herein, standards are voluntary unless adopted as a local or state requirement or agreed to within a labor management agreement (Barr & Eversole, 2003). What are not voluntary are the myriad laws and regulations enacted by federal and state governments, many of which influence fitness for duty considerations. These range from laws which affect testing and hiring practices to those which address incumbent personnel (Davis & Sharkey, 2008). Since the vast majority of career and combination departments conduct testing of potential employees to assess their ability to perform firefighting tasks, these laws can have an impact on how these tests are designed and administered (Cooper Institute, 2008; Davis & Sharkey, 2008). Beyond testing of firefighter candidates, fire service leaders and managers have a number of laws and regulatory requirements that affect incumbent firefighters. For example, several OSHA regulations require mandatory medical testing of fire department operational personnel (OSHA, 2006a; OSHA, 2006b; OSHA, 2006c).

There are several other considerations for departments electing to implement health assessments as part of their fitness for duty program. The *Health Insurance Portability and Accountability Act of 1996* (HIPPA) contains provisions under which employees receiving medical assessments underwritten by their employers, whether as required by regulatory standard or through voluntarily participation, are not required to reveal any information regarding the outcomes of their assessments as their personal health information is highly protected under this statute (U.S. Department of Health and Human Services, 2006).

One dichotomy that also exists is that while firefighters are not required to disclose personal medical information to their organizations, there is one federal and a number of state

laws which provide for the presumption that certain medical conditions are presumed to have been incurred during the performance of firefighting duties. The families of firefighters who perish from such medical conditions can be granted certain monetary benefits by filing claims under these laws (Commonwealth of Virginia, 1991; FEMA, 2008). Health assessments, which many fire service organizations provide to their members on annual basis, can establish baseline values which can later assist members or their families who file claims under these laws.

As one can imagine, traversing through this maze of employment laws and regulations can be a daunting task. Not surprisingly, a number of fire departments have been involved in ligation over the application of fitness for duty standards including everything from initial candidate testing to employee disability and termination proceedings based on medical conditions (Davis & Sharkey, 2008; Godwin, 1996; Vorlander, 2003). Fire service leaders intent on implementing such standards and practices within their organizations would be well served by performing extensive research, referencing proven guidelines and standards, and consulting with legal authorities within their jurisdictions prior to implementation.

Taking into account the regulatory standards and industry guidelines, those organizations designing fitness for duty programs should determine the desired outcomes of instituting such practices. Literature research revealed a number of commonalities in the recommended components of these programs. Among the outcomes or objectives cited in multiple sources were applicant (i.e. firefighter candidate) screenings, employee fitness screenings and medical assessments, a well designed fitness program, and member wellness assistance (FEMA, 2004; IAFC, 2008: IFSTA, 1998; NFPA, 2000). These guidelines and recommendations are mirrored by independent analysis of firefighter line of duty deaths and the resulting proposals for reducing

these rates which often include language directing fire service organizations to implement comprehensive health and wellness programs (Hale, 2008).

A common thread that winds through many aspects of recommended program components is the need to proactively address all aspects of a firefighter's well being. Physiologically, firefighting is a very demanding job which places physical and mental stressors on those serving in emergency services. A number of studies speak to the cardiovascular stresses placed on firefighters and the physical demands of firefighting tasks (Hale, 2008; Study Measures, 2008; Sykes, 2002). And these observations are correlated by the fact that virtually all of the fire service standards and guides researched for the writing of this paper note the need for cardiovascular training to be a primary component in any fitness program implemented in fire departments (FEMA, 2004; IAFC, 2008; NFPA, 2000).

Other considerations include gauging firefighter fitness levels through the use of body mass indexing. Studies have shown that excessive body fat, which some say is more prevalent in the fire service (FEMA, 2004; Krueger, 2008; Webber, 2007), creates intrinsic performance problems for active firefighters (Sykes, 2002). This problem is addressed by a number of fitness for duty guidelines and standards which include recommendations for employee wellness counseling inclusive of healthy eating and weight loss assistance (Carter, 2006; FEMA, 2004; IAFC, 2008; NFPA, 2000).

Measuring outcomes, after program implementation, is also a consideration. Fire service organizations which decide to enact comprehensive fitness for duty practices should evaluate program effectiveness by collecting data on job-related illnesses and injuries and measure success based on reduction in absenteeism, and reduced medical and workers compensation costs (USFA, 1996).

The final research question posed in this paper relates to how fire service agencies are implementing fitness for duty programs within their organizations. Beyond the sterile language of standards and guides, the application of these practices in real world environments provides a window as to how the fire service is dealing with the issue of firefighter health, safety and wellness. In reviewing a number of fire department policies and procedures, there was a wide variation in the scope and application of these practices (Cobb County Fire and Emergency Services, 2003; Irving Fire Department, 2008; Montgomery County Fire and Rescue Department, 2001; Norton Shore Fire Department, 2007; Olathe Fire Department, 2005; Prospect Heights Fire District, 2007; Spokane Fire District 10, 2008).

The questionnaire which was complied as part of this research is also revealing in terms of how individual agencies are addressing fitness for duty implementations and practices. Like the literature review, the questionnaire responses validated that fire service organizations view fitness for duty from many different angles and enact internal policies and practices based on organizational priorities and needs. Analysis of the both the submitted procedures and questionnaire responses reveal that firefighter fitness for duty is a burgeoning issue within the American fire service which is influenced by a number of factors at a number of different levels. These include department leadership approach to fitness for duty, past experiences relating to firefighter health and safety, legal considerations, labor-management agreements, program funding and many other factors. The review outcomes are also representative of the breadth and complexity of the American fire service, however many of the practices documented were based on common standards and guidelines available to fire service agencies.

A question then arises as to validation of the original hypothesis that Chesterfield Fire and EMS (CFEMS) does not employ comprehensive fitness for duty standards for firefighters.

The question is answered in assessing the outcomes of the research conducted herein in comparison with the insight gained through a review of CFEMS practices and the interview of a CFEMS official. While CFEMS has developed and employs departmental practices which address a number of fitness for duty criteria, compared to recommended standards and practices, and to what other fire departments are doing, Chesterfield's approach cannot be considered as comprehensive. Although CFEMS has made a significant investment towards recommended firefighter fitness for duty program application, there are several significant gaps in current practices which could be focused upon on to ensure that a more comprehensive approach is taken.

The department uses a candidate agility test which differs from the nationally accepted standard and may or may not have been validated for discriminatory practices per federal regulations. The performance expectations of this test are not noted in any of the organization's documented policies or procedures. And, as noted in the interview summary contained herein, the health assessments given to firefighter candidates are done without the application of a medical screening standard from which to eliminate those unfit for firefighting tasks.

Incumbent firefighters in the organization do derive the benefits of a well developed health assessment program and participate in periodic fitness assessments and a fitness program managed by a qualified vendor. Both the health assessment program and the fitness program were developed and are managed using significant portions of the NFPA 1582 and 1583 standards guidance. The department also maintains a physical agility test for all operational personnel in which data is collected on an annual basis. However, the physical agility test outcomes and data are not used in any fashion and do not correlate to the other medical and fitness programs analysis and oversight.

CFEMS maintains an overarching policy relating the organization's approach and commitment to member health and wellness and has a procedure related to fitness program management. But these guiding documents make no provision for instances when members suffer from significant health related problems which could cause them to be unable to fulfill the physical requirements of active firefighting tasks. With the exception of the failure of a respiratory clearance test, the department currently has no objective written guidelines for the removal of personnel from active duty due to medical considerations. Given that personnel can choose not to self disclose medical conditions under federal law, this places the department in a position in which a significant monetary investment in employee medical screenings may not permit the organization to remove an employee from active duty when their underlying health may place them and those around them at significant risk.

In those situations where an injury does not permit a member to fulfill their duties or an employee chooses to self disclose an underlying medical condition; CFEMS does not have a guiding document which provides an objective approach to managing these instances. Other than a procedure outlining light duty assignments, the organization currently manages each case of short or long term medical disability on an individual basis. While this succeeds in permitting flexibility as each case may differ, it places the organization at risk due to a lack of general guidance and continuity in decision making as organizational leadership changes and different decisions and criteria are applied over time. This lack of a guiding document (e.g. procedure) also places individual members at a disadvantage as they have no evidence of organizational direction other than empirical knowledge of other situations which may have occurred in the past.

Many fire departments employ risk management functions which work to reduce exposure to accidents, injuries and illnesses. A fitness for duty program should be viewed as a functional component of any comprehensive risk management program. The past two decades have produced quite a bit of research in the area of firefighter health and wellness and a multitude of resources exist for personnel tasked with designing and implementing such programs within their organization. As the fire service works to reduce line of duty deaths and the significant injuries and illnesses related to firefighting operations, the implementation and maintenance of comprehensive fitness for duty practices should be at the forefront of these efforts.

Recommendations

Based on this research, Chesterfield Fire and EMS may benefit from adding to and revising some of the organization's existing fitness for duty practices. Specifically, the department should develop a procedure which details the entry requirements for career firefighters including generally outlining the mental acuity and physical testing which is done. Language in this document should reflect the desired outcomes of the candidate testing and include specific text which notes that the physical agility test is designed to predict firefighter candidates who can perform the physical job requirements of a firefighter and to identify those that cannot.

Based on this assessment, with the exception of body mass indexing measurements, the department does not maintain any written criteria on minimum medical requirements for the acceptance of career or volunteer firefighter candidates. The current decision-making process relies solely on the recommendation of the physician performing the medical assessments. Therefore, it is recommended that the organization consult fire service standards and regulatory

requirements in order to establish baseline medical condition criteria for the acceptance of new career and volunteer firefighters. The criteria should clearly identify those medical conditions which would preclude an applicant from career employment or volunteer service as a frontline firefighter.

Related to physical requirements, research indicates that the use of body mass indexing (BMI) as an indicator for physical fitness may not be an accurate form of measurement. It is recommended the CFEMS conduct further research and determine whether the present gross measurement of individual's BMI, using a height and weight chart, is fair and accurate. If this process is not, the department should then consider other methodologies for making this determination for new employees and those personnel who have signed existing memorandums of agreement to maintain their BMI within a certain range.

CFEMS should also consider taking a more comprehensive and coordinated approach to all of the different fitness for duty type programs and practices which are currently maintained. The department's separate vendors for medical assessments and fitness program management, (which includes yearly fitness assessments), should coordinate with each other and develop a comprehensive, though anonymous, profile of the overall health and fitness levels of personnel employed by the organization. This profile would permit department leadership, as well as those tasked with managing these programs, to adjust practices and programs to address identified trends or profiles with the intent to improve the overall health and wellness of career personnel. Additionally the current physical agility test, which is completed yearly by all operational career personnel, should be formalized in a written procedure with the results complied and added as an informational component of the overall fitness profile developed by the organization.

Due to the size of the organization, the age of existing personnel and advances in medical and fitness assessments provided to members, the department has seen an increase in personnel who suffer from debilitating injuries or self-disclosed medical conditions which result in long term absences from active duty. Other than procedural language which references the aforementioned respiratory clearance program, the department maintains no technical guidance which speaks to how these cases are adjudicated. Thus, procedural language should be developed which acknowledges these situations and provides guidance to organizational members on how these cases will be managed. Acknowledging that the department leadership may not wish to give up the ability to make subjective, case by case decisions, the procedural language should outline how members identify these instances to department management, what the member's long term reporting responsibilities are, the processes employed by the department to make determinations on long term, non-operational job assignments, and how the member may access organizational resources and assistance to return to active duty, or separate from employment if this becomes necessary.

It is further recommended that either within current policy language, or as a stand-alone policy, a document should be developed with addresses all aspects of fitness for duty practices within CFEMS. This should include; all physical, mental acuity and medical testing which is done prior to and during employment or while serving as a career or volunteer member; the current drug and alcohol testing processes managed within the Chesterfield County employment practices; the mandatory medical testing done in response to federal regulations; maintenance of personal health and fitness required of operational personnel; a statement of the organization's approach to long term disability from active duty situations; and member support programs which are available. This document should serve as a single point of reference for department

personnel wishing to view an all-inclusive overview of fitness for duty expectations and practices within CFEMS.

As previously noted, CFEMS employs many of the fitness for duty practices recommended in fire service standards. Managing existing practices in a more inclusive fashion and clearly identifying those practices and performance expectations in department policies and procedures will permit CFEMS to develop and maintain a high performance fitness for duty program for organizational members.

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Appendix I

Question 1: As defined within this questionnaire, does your department maintain policies, procedures, guidelines or protocols that address fitness for duty for personnel? If your answer is NO please move to Question #9

	Response Percent	**Response Count**
Yes	92.5%	111
No	7.5%	9
	answered question	**120**
	skipped question	**0**

Question 2: If yes, in which format is your fitness for duty criteria maintained? (Answer all that apply)

	Response Percent	**Response Count**
Organizational policy	38.3%	46
Organizational procedure	22.5%	27
Standard operating guidelines	30.8%	37
Medical protocols	49.2%	59
Testing protocols	44.2%	53
City / county / fire district procedure	24.2%	29
Other (please specify)	15.8%	19
	answered question	**120**
	skipped question	**0**

The responses listed as other which were specified included:

- State Civil Service Guidelines; Texas Local Government Code
- NFPA Standard
- City Risk Manager review
- Random physical exam, for existing hires, who either return from a long sickness or up for promotion.
- Wellness program in MOU with union
- N/A
- Rehab SOG / Fitness SOG and Occ Health follows NFPA 1582
- Follow NFPA 1500 and other NFPA requirements
- NFPA guidelines
- Past practice and agreement with employees

Question #3: Is the fitness for duty criteria applied to newly hired personnel, existing personnel or both?

	Response Percent	**Response Count**
New hires only	14.2%	17
Existing personnel only	0.8%	1
Both new hires and existing personnel	85%	102
	answered question	**120**
	skipped question	**0**

Question #4: In developing your organization's fitness for duty criteria which sources of information influenced that development? (check all that apply)

	Response Percent	Response Count
Fire service consensus standards (e.g. NFPA 1500)	64.6%	73
Federal laws or regulations	30.1%	34
State laws or regulations	32.7%	37
Organizational standards and practices	38.9%	44
Organized labor bargaining agreement	28.3%	32
City / county / fire district personnel standards	23.9%	27
Legal considerations	38.9%	44
Other (please specify)	10.6%	12
	answered question	**113**
	skipped question	**7**

The responses listed as other which were specified included:

- A fitness test for new hires that is not binding, and for currently working doctor related criteria like BP, weight, history which is reported by patient.
- None
- Covers reporting for duty only
- Motor vehicle med requirements, Dr's opinion
- don't know
- NFPA 1582
- NFPA 1582, LEOFF physical standards
- Our dept. physician was also on the committee

- IAFF Wellness & Fitness Initiative
- JPR's and JTA's
- Company developed New Hire fitness test

Question #5: My organization’s fitness for duty criteria consists of (select all that apply):

	Response Percent	**Response Count**
Physical testing	85.0%	96
Mental acuity testing	18.6%	21
Medical screening	91.2%	103
Psychological testing	33.6%	38
Drug and alcohol screening (random and suspicion)	69.0%	78
Other (please specify)	6.2%	7
	answered question	**113**
	skipped question	**7**

The responses listed as other which were specified included:

- We only do reasonable suspicion drug/alcohol testing
- Cardio workup
- New Hires all of the above, currently employees only have random/suspicion drug and etoh screening
- Yearly Cardio-Pulmonary Stress Test
- All of the above based on incident or suspicion
- Background check

Question #6: If the fitness for duty screening criteria identifies an underlying condition, does your organization have set parameters for determining whether an employee can continue on active duty or be removed?

	Response Percent	**Response Count**
Set parameters which define active duty status	16.8%	19
No set parameters – decided on a case by case basis	17.7%	20
Based on a medical professional's recommendation	50.4%	57
Sent to a review board, committee or specific individual (e.g. Chief Officer) for a decision	3.5%	4
I don't know	4.4%	5
Other (please specify)	7.1%	8
	answered question	**113**
	skipped question	**7**

The responses listed as other which were specified included:

- Not yet, but very soon. Most relys on our DR.s input
- We have a brief SOG regarding employees who report to work sick or injured
- NFPA 1582 standard is followed
- None
- Corporate Health Physician - NFPA Complaint
- combination of the above, #1, #2 & #3
- Testing can eliminate a candidate but has no bearing on those currently employed

Question #7: If the fitness for duty screening criteria identifies an underlying condition which results in a long term or permanent absence from active duty what are the options for the department and person affected?

	Response Percent	**Response Count**
Long term light duty assignment	13.3%	15
Transfer to a non-operational position within the department	13.3%	15
Transfer to another city / county / fire district job	5.3%	6
Disability retirement	33.6%	38
Termination	7.1%	8
Other (please specify)	27.4%	31
	answered question	**113**
	skipped question	7

The responses listed as other which were specified included:

- 1, 2 and 4
- Depends on the long termed injury or illness will determine light duty, transfer to another city department, or disability retirement
- ALL are options, it depends on the employee and there issue.
- member is required to see his/her doctor for treatment and is placed on sick duty
- depending on situation, they may be retired or asked to resign
- if another position within the dept is available and the person is qualified to do it, then they may transfer to that position. Otherwise, it's out the door.

- We are in the process of developing this
- Maybe all of the above depending on the case.
- None
- dependent on which case, new hire to senior firefighter
- Unknown, it has never come up
- all of the above have been applied in my agency
- Depends on medical evaluation, we have no light duty or non operational positions
- Job related- Disability retirement, not- retirement
- We really consider all of those options and make the best decision on a case by case basis
- If an employee has a condition that requires more leave than the 12 week FML act limit the employee is terminated
- All of the options listed are possible.
- case by case determined by causation and length
- We have not addressed this issue yet
- depends on the circumstance...some receive light duty, others are retired out...if under initial department probation (ff recruits) terminated
- answers 1,2 4 and 5
- Either termination or disability retirement
- All of the above may be options depending on circumstances

- Each firefighter has 365 days of sick leave for a specific illness or injury. If they cannot return to work "Fit for Full Duty" the employee is terminated for medical reasons.
- long term would be light duty, permanent would be retirement
- A combination of all, depending on situation
- Light duty (non-operational) position if available - case by case
- line of duty limitation=long term light duty, off duty limitation=12 month limit to termination
- We have a 365 day sick leave process and at the end of this period the employee will either be released for duty or released from the department.
- Not hired

Question #8: Has the application of fitness for duty criteria within your organization resulted in the identification of a serious condition which may have jeopardized the health and welfare of the individual diagnosed and or their co-workers?

	Response Percent	**Response Count**
Yes	53.2%	59
No	32.4%	36
Unsure	14.4%	16
	answered question	**111**
	skipped question	9

Question #9: If your organization does not maintain fitness for duty criteria please select the best answer as to why this is not done:

	Response Percent	Response Count
Unaware of the need to do so	21.4%	3
Not permitted due to policy, practice, labor agreement, etc	14.3%	2
Aware of the need but choose not to	21.4%	3
Criteria is being developed but has not been implemented yet	0%	0
Other (please specify)	42.9%	6
	answered question	**14**
	skipped question	**106**

The responses listed as other which were specified included:

- N/A
- we do
- Program has been cancelled as of 2007
- IAFF against it!
- N/a
- N/A

Question 10: Please select the type of your organization:

	Response Percent	Response Count
Career organization	65.8%	73
Volunteer organization	5.4%	6
Combination (career and volunteer) organization	28.8%	32

Other (please specify)	0%	0
	answered question	**111**
	skipped question	**9**

Question 11: Please select the population served:

	Response Percent	**Response Count**
Less than 5,000 people	2.7%	3
5,000 to 25,000 people	25.2%	28
25,000 to 100,000 people	40.5%	45
Greater than 100,000 people	31.5%	35
	answered question	**111**
	skipped question	**9**

Question 12: Please provide your position / rank

	Response Percent	**Response Count**
Firefighter	63.3%	7
Company Officer (Lt. or Capt.)	24.3%	27
Battalion Chief	21.6%	24
Division Chief	8.1%	9
Deputy Chief	13.5%	15
Assistant Chief	9%	10
Chief of the Department	17.1%	19
	answered question	**111**

60	***skipped question***	**9**

Appendix II

CHESTERFIELD FIRE AND EMS

POLICY - #5

SUBJECT: Health and Wellness

DATE: January 1, 2008

PURPOSE: To ensure that LEO-eligible career personnel maintain a level of health and wellness that promotes overall fitness and well being.

A. GENERAL

SECTION 1

The health and wellness of our members is of paramount importance. The Department provides the resources of time, funding and expertise to ensure that personal wellness and physical fitness activities are supported and members maintain good physical conditioning.

SECTION 2

The Department maintains comprehensive health and wellness programs for LEO-eligible career personnel consisting of annual health, hearing and respiratory assessments (physicals) and a professionally managed fitness program.

B. PROGRAM DESIGN AND MANAGEMENT

SECTION 1

The annual health, hearing and respiratory clearance programs are designed to:

- Determine if members are physically fit for duty and can perform without undue risk to themselves or others;
- Monitor and document the effects of possible exposures to specific biological, physical, or chemical agents;

- Detect changes in members' health;
- Detect disease patterns in the work force;
- Provide members with information about occupational hazards and their present health;
- Detect a hearing loss as identified by a standard threshold shift during annual audiometric testing;
- Compliance with federal regulations on respirator clearances.

The Chief of Personnel Management and Development is responsible for the annual health, hearing and respiratory clearance program management.

SECTION 2

The fitness program consists of personal fitness program design and management, return to work rehabilitation assistance and smoking cessation assistance. The program, which is based on the IAFC / IAFF Fire Service Joint Labor Management Wellness-Fitness Initiative, addresses physical core strength, flexibility and aerobic fitness for LEO eligible employees. The Department Safety Officer (DSO) manages the fitness program.

C. PARTICIPATION AND COMPLIANCE

SECTION 1

Participation in the annual health assessments is mandatory for personnel hired after March 1, 2002; personnel who receive compensation via the Career Development Program and/or specialty team (Dive, HazMat or Technical Rescue) participation. It is not mandatory for other LEO personnel but is highly encouraged.

- Participation in the medical clearance for respirator use is an OSHA requirement and is mandatory. Career members eligible to work in Emergency Operations, who fail to

maintain a valid and current respiratory clearance form, will not be permitted to work in Emergency Operations until a clearance has been obtained.

- Members who fail to maintain respiratory clearance without just cause will be placed on administrative leave without pay.
- Members who participate in the respiratory clearance testing but fail the test may be reassigned until the clearance is attained.
- Part-time employees who are required to wear a self-contained breathing apparatus are required to obtain respiratory clearance.

- Participation in the department's annual hearing test is mandatory. Career members who are eligible to work in Emergency Operations are required to have an annual audiometric test (hearing test) during their health assessment process.
    - Career members who opt-out of the Health Assessment Program will obtain their hearing test from the current contract vendor.
    - When a career member separates from the department, whether due to voluntary or involuntary separation or retirement, an exit hearing assessment will be scheduled prior to that member's last day of work, unless they have received their regular annual health assessment within 60 days of separation from CF&EMS.
- The procedures for maintaining compliance with the annual physical assessment aspects of this policy are detailed in Human Resource Procedure Number 5.

SECTION 2

Participation in the fitness program is mandatory each shift day for personnel assigned to Emergency Operations. The procedures for maintaining compliance with the annual fitness program aspects of this policy are detailed in Training Procedure #3 – Fitness Program

Management.

SECTION 3

LEO-eligible personnel not assigned to Emergency Operations are required to participate in periodic fitness assessments and maintain a personal fitness program designed by the program vendor. These personnel are expected to maintain themselves in a physical condition that would not preclude them from returning to Emergency Operations physically ready to work.

Paul W. Mauger

Chief of Department

CHESTERFIELD FIRE AND EMS

Addendums
- Annual Physical Protocols
- Flow Chart
- Medical Clearance for Respirator Use Form

Appendix III

CHESTERFIELD FIRE AND EMS
PROCEDURES

Division:	Personnel Management and Development	Procedure:	Training #03
Subject:	Fitness Program Management	Supersedes:	None
Authorized by:	Deputy Chief James Graham	Date Issued:	January 1, 2008

I. GENERAL

As part of an organizational health and wellness initiative, the department maintains a physical fitness program. The primary focus of this program is to reduce our LEO eligible member's work related injuries each year and minimize the potential for health related firefighter deaths and injuries. The department provides the resources of time, funding and expertise to ensure that fitness activities are accomplished.

II. OVERVIEW

A. The fitness program is based on the International Association of Fire Chiefs (IAFC) / International Association of Firefighters (IAFF) Fire Service Joint Labor Management Wellness-Fitness Initiatives and addresses member's core strength, flexibility and aerobic fitness levels.

B. Oversight of the fitness program is the responsibility of the Department Safety Officer (DSO).

C. The fitness program is managed by a vendor specializing in employee health and fitness. All vendor relation issues are to be addressed through the DSO.

D. The fitness program is designated for career LEO eligible members.

III. PROGRAM SCOPE AND MANAGEMENT

A. The vendor will design, implement and manage a fitness program for each LEO-eligible member of CFEMS. The fitness program will address core strength, flexibility and aerobic fitness.

B. A fitness manager, who is an employee of the vendor, will coordinate the entire fitness program for CFEMS. This person shall provide the planning, supervision and implementation of all wellness and fitness programs and testing described herein. Vendor employees will also be capable of advising members on matters of nutrition and diet to help them maintain or attain a desirable body weight.

C. The program scope will include annual fitness checks, fitness program development, employee monitoring, program updates, periodic fitness assessments, return to duty assistance and smoking cessation support to organizational members.

1. Annual fitness checks of LEO-eligible members will be coordinated by the DSO and are conducted by the vendor in CFEMS facilities. These assessments are to include tests of core strength, flexibility and aerobic fitness levels.

2. The vendor will assess the outcome of the annual fitness checks and provide a summary report to the fire chief on the overall fitness level of LEO-eligible members participating in the program. The vendor will also furnish a report to the DSO at the end of each adjustment period (i.e. calendar quarter), outlining member participation, improvement and the overall effectiveness of the program in maintaining the fitness of LEO-eligible members.

i. The DSO will compile a summary report from the vendor supplied data and

provide quarterly feedback to the division heads on member status and participation.

ii. The DSO will work with the vendor to make program adjustments, as needed, based on the annual fitness checks to ensure that the program goals and objectives are met.

3. The vendor will provide quarterly fitness assessments and program updates to the participating members providing updated training to meet the goals of the program. This will be accomplished via station or site visits and other multi-media deliveries.

4. The vendor will provide fitness program assistance to members returning to duty from injury or illness. The assistance is designed to permit the member to rehabilitate themselves to return to active duty in a physical condition which permits them to safely and effectively perform their job.

5. The vendor will provide smoking cessation assistance to members who request it.

6. The vendor will administer fitness checks and develop fitness programs for new career personnel hires while they are in their first three (3) weeks of recruit training.

7. The vendor will partner with institutions of higher education that have programs in sports medicine, kinesiology, nutrition, exercise physiology, or related fields. This requirement will permit the vendor to have CFEMS participate in research and clinical studies to ensure continual improvement of the program.

8. The vendor will also periodically evaluate the physical fitness equipment at each work location and make recommendations to the department as to what the minimum standard inventory should be.

IV. PARTICIPATION AND COMPLIANCE

A. Participation in the fitness program is **mandatory** each shift day for personnel assigned to Emergency Operations, unless:

1. They are assigned to a light duty assignment due to a physical condition that precludes them from participating.

2. Call or work load (e.g. responses) prevents the member from participating.

B. LEO-eligible members not assigned to Emergency Operations are required to participate in quarterly fitness assessments and maintain a personal fitness program designed by the program vendor. These personnel are expected to maintain themselves in a physical condition that would not preclude them from returning to Emergency Operations physically ready to work.

C. Personnel needing individual assistance with program management, return to duty or smoking cessation assistance are to route those requests to the vendor through their immediate supervisor. The supervisor is to schedule this assistance through the DSO.

V. PROCEDURES

A. The vendor will conduct an annual fitness check of each LEO-eligible member. Scheduling of companies will be co-managed by the DSO and battalion staff. These checks shall be non-punitive and will be used only to evaluate and develop the members' exercise prescription and will consist of:

1. Treadmill Evaluation- Submaximal Graded Treadmill Evaluation (Gerkin Protocol)

2. Grip Strength- Hand Grip Muscle Grip Strength Protocol

3. Leg Strength - Leg Muscle Strength Evaluation Protocol

4. Arm Strength- Arm Muscle Strength Evaluation

5. Push Up- Push up Evaluation Protocol

6. Curl Up- Curl-up Evaluation Protocol

7. Flexibility Evaluation- Sit and Reach Protocol

B. The vendor will develop and deliver a physical exercise program based on the outcome of the LEO eligible member's initial and then yearly evaluation. This is to enable the member to improve his or her fitness level. The program will be delivered to the members in their station or the PSTC gym.

C. Quarterly fitness assessments will be conducted by the vendor to review member progress in their prescribed program and to adjust the individual programs as needed. The program will be monitored by the vendor and should not exceed 16 weeks between adjustments.

1. Adjustments may include changes in exercise routines, the amount of weight being lifted, the duration of an exercise or increased or decreased repetitions.
2. Individual program changes will be based on dialogue between the CFEMS member and employees of the vendor.
3. During the assessment leading to a program adjustment, the vendor will have an employee at the members' station or the PSTC gym to ensure proper form and understanding of the exercise routine.
4. Adjustments should normally be scheduled and performed for an entire shift of personnel at the same time, unless extenuating circumstances such as long term absences preclude this from happening.
5. The vendor shall make arrangements for workplace visits at least 72 hours in advance to accommodate the 24/48 work schedule used in Emergency Operations. Appointments shall be coordinated through the company officer (supervisor) of the shift at each station.

6. The vendor will maintain a 24-hour phone number where members may contact the vendor. The vendor will return all calls within 72 hours.

D. Members may contact the vendor for an adjustment in their program when returning to duty from illnesses or injuries that exceed one month in duration. This contact is to be made through their immediate supervisor to the DSO for scheduling with the vendor.

E. Members may contact the vendor for assistance with smoking cessation. This contact is to be made through their immediate supervisor to the DSO for scheduling with the vendor.